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JNK1 siRNA (h2): sc-44210

BACKGROUND

c-Jun N-terminal kinases (JNKs) phosphorylate and augment transcriptional activity of c-Jun. JNKs originate from three genes that yield ten isoforms through alternative mRNA splicing, including JNK1a1, JNK1b1, JNK2a1, JNK2b1, and JNK3a1, which represent the p46 isoforms, and JNK1a2, JNK1b2, JNK2a2, JNK2b2, and JNK3b2, which represent the p54 isoforms. JNKs coordinate cell responses to stress and influence regulation of cell growth and transformation. The human JNK1 (PRKM8, SAPK1, MAPK8) gene maps to chromosome 10q11.22 and shares 83% amino acid identity with JNK2. JNK1 is necessary for normal activation and differentiation of CD4 helper T (TH) cells into TH1 and TH2 effector cells. Capsaicin activates JNK1 and p38 in Ras-transformed human breast epithelial cells. Nitrogen oxides (NOx) upregulate JNK1 in addition to c-Fos, c-Jun, and other signaling kinases, including MEKK1 and p38.

REFERENCES

1. Kallunki, T., et al. 1994. JNK2 contains a specificity-determining region responsible for efficient c-Jun binding and phosphorylation. *Genes Dev.* 8: 2996-3007.
2. Dong, C., et al. 1998. Defective T cell differentiation in the absence of JNK1. *Science* 282: 2092-2095.
3. Potapova, O., et al. 2000. Inhibition of c-Jun N-terminal kinase 2 expression suppresses growth and induces apoptosis of human tumor cells in a p53-dependent manner. *Mol. Cell. Biol.* 20: 1713-1722.
4. Dong, C., et al. 2000. JNK is required for effector T-cell function but not for T-cell activation. *Nature* 405: 91-94.

CHROMOSOMAL LOCATION

Genetic locus: MAPK8 (human) mapping to 10q11.22.

PRODUCT

JNK1 siRNA (h2) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see JNK1 shRNA Plasmid (h2): sc-44210-SH and JNK1 shRNA (h2) Lentiviral Particles: sc-44210-V as alternate gene silencing products.

For independent verification of JNK1 (h2) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44210A, sc-44210B and sc-44210C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

JNK1 siRNA (h2) is recommended for the inhibition of JNK1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

JNK1 (F-3): sc-1648 is recommended as a control antibody for monitoring of JNK1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor JNK1 gene expression knockdown using RT-PCR Primer: JNK1 (h2)-PR: sc-44210-PR (20 μ l, 482 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Makino, T., et al. 2010. Basic fibroblast growth factor stimulates the proliferation of human dermal fibroblasts via the ERK1/2 and JNK pathways. *Br. J. Dermatol.* 162: 717-723.
2. Song, T.H., et al. 2019. Dendrobine targeting JNK stress signaling to sensitize chemotoxicity of cisplatin against non-small cell lung cancer cells *in vitro* and *in vivo*. *Phytomedicine* 53: 18-27.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.